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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,628	07/02/2003	Dirk Manger	Z&PINFP10599	4058
24131	7590	06/14/2004	EXAMINER	
LERNER AND GREENBERG, PA			SARKAR, ASOK K	
P O BOX 2480			ART UNIT	
HOLLYWOOD, FL 33022-2480			PAPER NUMBER	
			2829	

DATE MAILED: 06/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/612,628	Applicant(s) MANGER, DIRK	
	Examiner Asok K. Sarkar	Art Unit 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-22 is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/22/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Splinter, US 4,303,455.

Regarding claim 1, Splinter teaches a method for locally heating a specific part in a substrate comprising the step of:

- providing the substrate 10;
- producing at least one region 12 in the substrate 10 with a lower specific resistance than a surrounding region formed by the substrate (due to impurity doping); and
- heating locally the region by inducing eddy currents by irradiation with electromagnetic energy 13 in between column 1, line 52 and column 2, line 25 with respect to Fig 1.

Regarding claim 2, Splinter teaches electromagnetic energy in the microwave frequencies in column 1, line 65 that is translated into wavelengths between  $10^{-6}$  to  $10^{-4}$  m range.

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Regarding claim 4, Splinter teaches radiating in the radiation at a substantially perpendicular angle of incidence relative to a main surface of the substrate with reference to Fig. 1.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Splinter, US 4,303,455 in view of Licari, "Coating Materials For Electronic Applications", pages 31 – 35 (Noyes Publication).

Splinter teaches coupling of the microwave radiation with the impurity regions to generate eddy current in column 2, lines 11 – 25 which means the current is induced in the low resistivity (metallic) areas due to implantation. Splinter fails to teach the specific resistance between  $10^{-4}$  to  $10^{-6}$   $\Omega\text{m}$ .

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Licari teaches (see Table 1.13 in page 34) that compared to semiconductors metals inherently have lower resistivities.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Splinter and irradiate with microwaves in areas with low resistivities within the range of  $10^{-4}$  to  $10^{-6}$   $\Omega\text{m}$  for efficient heating/annealing of the doped areas of the substrate.

Claims 5 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Splinter, US 4,303,455.

Regarding these claims, Splinter fails to teach radiating the radiation at an angle other than at  $90^{\circ}$  to the substrate by varying the angle of incidence.

However, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Splinter and irradiate at an angle other than at  $90^{\circ}$  to the substrate by varying the angle of incidence in order to direct the beam to the doped area of the substrate for better coupling of the radiation with the doped regions of the substrate.

#### ***Allowable Subject Matter***

6. Claims 9 – 22 are allowed.

7. The following is an examiner's statement of reasons for allowance:

Claims 9 – 22 recite, inter alia, a method of chemical vapor deposition comprising the steps of providing a substrate having at least one region with a lower specific resistance than other areas of the substrate, the substrate and the region having a temperature below a predetermined deposition temperature; providing at least one

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precursor gas; and heating locally the region by inducing eddy currents by irradiation with electromagnetic energy, resulting in the region being heated to a given temperature above the predetermined deposition temperature. The art of record does not disclose or anticipate the above limitation in combination with other claim elements nor would it be obvious to modify the art of record so as to form a device including the above limitation.

### ***Conclusion***


8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asok K. Sarkar whose telephone number is 571 272 1970. The examiner can normally be reached on Monday - Friday (8 AM- 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Asok K. Sarkar  
May 17, 2004

Patent Examiner